2.2 INITIAL ALTERNATIVES CONSIDERED

2.2.1 Transportation Demand Management (TDM) (dismissed from further consideration)

Transportation Demand Management (TDM) Strategies are developed to reduce traffic congestion and other environmental effects. The strategies are designed to reduce the number of single occupancy vehicles (SOVs) and emphasize non-motorized or higher occupancy travel modes. TDM comprises all transportation forms. Some TDM strategies include:

- Transit
- Ridesharing and Ride Matching
- Walking and Bicycling
- Telecommuting
- Staggered Work Schedules
- Parking Management
- Transportation Allowances
- High Occupancy Vehicle (HOV) Facilities/Park and Ride Lots
- No-Drive Days
- Trip Reduction Ordinances
- Complementary Incentives

Currently, transit is available only for the elderly and handicapped through the Polk County Transportation for the Disabled and Elderly, Inc. The Polk County Council on Aging also provides a volunteer drive service. The only public transit service available in Barron County is the Rice Lake bus system that serves the residents of the city of Rice Lake. There are no designated bike lanes along the present US 8 corridor, but bicyclists use highways and county roads as bicycle routes. However, through the city of Barron, US 8 is a planned state highway bikeway. The remaining segment of the US 8 corridor is classified as “undesirable conditions” for bicyclists.

The implementation of TDM strategies is not likely to have much effect on traffic along US 8. TDM strategies may also be difficult to initiate because of limited existing public transportation facilities. Regional traffic will likely be unaffected by TDM since public transportation alternatives are very limited and localized.

TDM strategies would not address the current transportation needs of US 8 and are therefore not considered a viable project alternative and have been eliminated from further consideration.

2.2.2 No-build Alternative (serves as a baseline for comparison)

A. Description of Alternative

Under the No-build Alternative, improvements to US 8 would consist primarily of maintenance activities and spot improvements. US 8 would remain a two-lane rural highway from WIS 35 (N) to US 53. Within the village of Turtle Lake and city of Barron, US 8 will remain as a four-lane undivided roadway. Maintenance activities could include road resurfacing and/or signalization of intersections. Examples of maintenance activities and spot improvements for a No-build Alternative that have been performed on the corridor include the replacement of the bridge over the North Branch Beaver Brook in 2002, the resurfacing of US 8 from US 63 (N) to Poplar Street in Turtle Lake and from Almena to Barron in 2003, the rut-paving nine miles (14.5 km) of US 8 from WIS 35 (N) to County H (N) in Polk County in 2003, and the WIS 25 (N) intersection improvement in Barron in 2005.

The intent of the No-build Alternative is to maintain continued operation of the existing roadway without expanding capacity or preserving the corridor for future improvements. The No-build Alternative serves as a baseline to which all other alternatives are compared.

B. Projected Effects of No-build Alternative

Environmental impacts associated with the No-build Alternative would be minimal because very little, if any, land acquisition and no relocations would be required. There would be no direct impacts to existing local road connections to US 8.

C. Purpose and Need Analysis

1. Corridors 2020 and Future LOS

The No-build Alternative does not allow US 8 to function as a Corridors 2020 Connector route with future traffic volumes and LOS. The No-build Alternative does not include capacity improvements and traffic analysis indicates that by the year 2030, the rural two-lane portions of the corridor will experience operational problems with LOS D and E. Corridors 2020 Connector routes typically require LOS C. Also, intersections within both Polk and Barron Counties have operational problems because side-street traffic experiences substantial delays.

2. Long-Term Planning and Corridor Preservation

Long-term corridor preservation is not achieved with the No-build Alternative because the Alternative does not provide any measures for future planning related to the 2020 Connector Route.

3. Crash Rate Reduction

Crash rates between 1996 and 2000 indicate growing safety needs particularly through the urban communities of Turtle Lake and Barron. Seventy percent of angle crashes and forty percent of rear-end crashes that occurred along the corridor were in Turtle Lake and Barron. Factors that contribute to the higher than average crash rates in Turtle Lake and Barron include insufficient gaps for side-street traffic to enter the traffic stream, high number of access points, and lack of left turn lanes. As traffic increases, the potential for crashes also increases because gaps along US 8 will decrease, and traffic on the side streets will experience greater delays.

4. Correct Substandard Roadway Items

The No-build Alternative provides only maintenance activities and limited corrections through spot improvements. Therefore, the No-build Alternative could potentially correct substandard geometric items but would not correct access-related roadway items.

5. Public Support

The No-build Alternative does not address the public concerns heard throughout the public involvement process. Local governments, area residents and businesses, and the US 8 Coalition do not support the No-build Alternative.

6. Summary of Purpose and Need

Table 2.2.2-1 summarizes how the No-build Alternative addresses the purpose and need criteria.

Table 2.2.2-1

No-build Alignment
Summary Purpose and Need Analysis

Criteria	No-build Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs	No
Long-term planning and corridor preservation	No
Reduce crash rates	No
Correct substandard roadway items	Yes and No
Public support from:	
Local Government	No
Area Residents and Businesses	No
US 8 Coalition	No

The No-build Alternative does not meet the criteria defined by the corridor project's purpose and need. Spot improvements and highway maintenance do not attend to the need for increased future capacity, corridor preservation, decreased crash rates, corrected substandard roadway items, and public support.

While this alternative does not meet the purpose and need for the project, the No-build Alternative does serve as the baseline for an analysis of impacts related to the preferred alternative selected for further study.

2.2.3 **Passing Lanes** (dismissed from further consideration)

A. Description of Alternative

The Passing Lane Alternative would add passing lanes along the existing US 8 corridor. The Passing Lane Alternative would not provide for future corridor preservation or any other improvements outside the locations identified for proposed passing lanes. There are nine existing passing lane locations on the US 8 corridor. Six of the nine passing lanes are located east of WIS 46 (S) and were constructed between 2001 and 2003. The existing passing lanes are at the following locations:

Existing Eastbound Passing Lane Locations

- Between WIS 35 (N) and WIS 65 (S) [starting 2.0 miles (3.2 km) east of WIS 35 (N)]
- Between Balsam Brook and WIS 46 (N) [about 0.8 miles (1.3 km)]
- Between WIS 46 (S) and County E [1.5 miles (2.4 km)]
- Between 50th Street and County V [1.25 miles (2.0 km)]
- Between Poplar Street and Almena [1.3 miles (2.1 km)]

Existing Westbound Passing Lanes

- Between 120th Street and WIS 46 (N) (starting about 1.1 miles (1.8 km) east of WIS 46 (N)
- Between County D and County E [1.5 miles (2.4 km)]
- Between 10th Street and 125th Avenue [1.5 miles (2.4 km)]
- Between 2 ½ Street and 3rd Street [0.5 miles (0.8 km)] (east of Turtle Lake)

The Passing Lane Alternative proposes six additional passing lane locations be constructed. These improvements would be at the following locations:

Proposed Eastbound Passing Lanes

- Between WIS 35 (N) to about 0.5 miles (0.8 km) west of 170th Street [1.5 miles (2.4 km)]
- Between WIS 46 (N) to about 0.5 miles (0.8 km) west of 120th Street [1.5 miles (2.4 km)]

- Between 0.5 miles (0.8 km) east of 6th Street to east of 7th Street [1.7 miles (2.7 km)]

Proposed Westbound Passing Lanes

- Between west of County TT and just west of 10th Street (Poskin) 1.4 miles (2.3 km)]
- Between WIS 46 (S) and County H (S) [1.5 miles(2.4 km)]
- Between WIS 46 (N) and WIS 65 (S) [2.0 miles (3.2 km)]

Figure 2.2.3-1 illustrates the locations of existing passing lanes and the proposed passing lanes for this alternative.

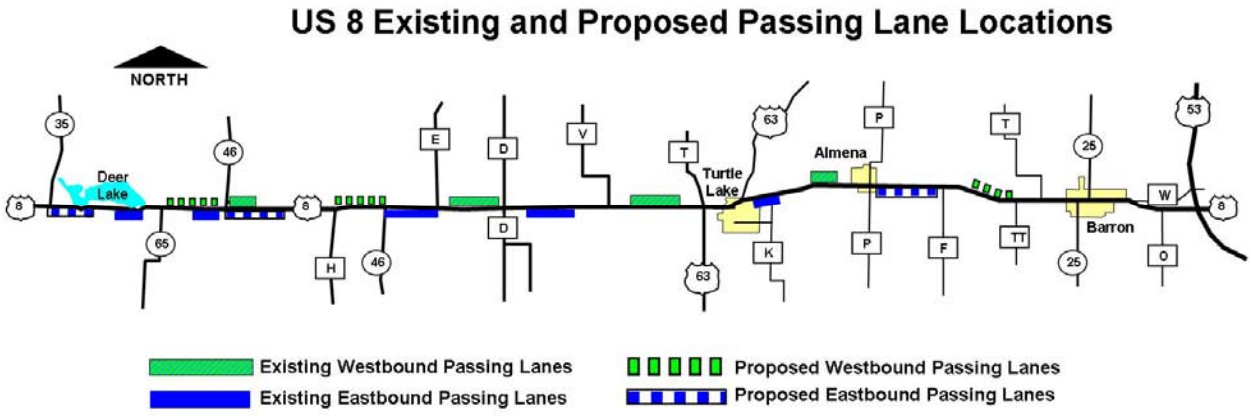

Figure 2.2.3-1 Existing and Proposed Passing Lanes

B. Projected Effects of Alternative

This alternative would add additional passing lanes along portions of the corridor and the existing roadway alignment would remain in its current location. Some land acquisition adjacent to the existing corridor would be required for the addition of the proposed passing lanes. This alternative would not impact any historical or archaeological sites. Also, the Passing Lane Alternative would not require any business or residential relocations.

C. Purpose and Need Analysis

1. Corridors 2020 and Future LOS

The Passing Lane Alternative would not allow US 8 to function as a Corridors 2020 Connector route with future traffic volumes and LOS. The Passing Lane Alternative would not include capacity improvements and traffic analysis indicates that by the year 2030, the rural two-lane portions of the corridor will experience operational problems with LOS D and E. Corridors 2020 Connector routes typically require LOS C. If a lower LOS is acceptable to WisDOT, the use of passing lanes could extend the use of some portions of the two-lane facility where projected design year traffic volumes are below 12,000 ADT. Intersections within both Polk and Barron Counties have operational problems because side-street traffic experiences substantial delays. Overall, the Passing Lane Alternative would not meet the capacity and level of service requirements for a Corridors 2020 roadway.

2. Long-Term Planning and Corridor Preservation

Long-Term Corridor Planning and Preservation would not be achieved with the Passing Lane Alternative because the alternative does not provide measures for corridor preservation of the 2020 connector route. The Passing Lane Alternative only temporarily mitigates increased traffic capacity by adding passing lanes.

3. Crash Rate Reduction

There is a limited amount of published safety literature dealing with crash rate changes as a result of passing lane installations. Studies indicate the addition of passing lanes does not increase crash rates but do not conclusively prove overall crash rates decrease.[1] The rate of head-on collisions was found to be the same or lower on passing lane sections than on two-lane roadways. Some of the observed decrease in crash rates may be a result of other factors including geometric improvements such as widening lanes, widening shoulders, and changes to superelevation (the banking of curves to improve driver comfort at higher travel speeds) and/or alignments.

4. Correct Substandard Roadway Items

The addition of passing lanes would only correct substandard items in areas where passing lanes are installed. In locations where passing lanes are not installed, the substandard items would remain.

5. Public Support

The public considered the Passing Lane Alternative as a means to compare with the other alternatives in the corridor study. Local officials did not view the Passing Lane Alternative as a viable long-term option and this alternative was not supported by the public.

6. Summary of Purpose and Need

Table 2.2.3-1 summarizes how the Passing Lane Alternative addresses the purpose and need criteria. This alternative was not carried forward because it does not meet the criteria for the purpose and need.

Table 2.2.3-1

Passing Lane Alternative
Summary Purpose and Need Analysis

Criteria		Passing Lane Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs		No
Long-term planning and corridor preservation		No
Reduce crash rates		Inconclusive
Correct substandard roadway items		In locations limited to new passing lanes
Public support from:		
	Local Government	No
	Area Residents and Businesses	No
	US 8 Coalition	No

2.2.4 Four-lane Alternatives

The 40-mile (64.4 km) study corridor was divided into seven segments for the purposes of description and analysis of the Four-lane Alternatives. The Four-lane Alternatives are categorized as on-alignment, realignment, bypass, or through-town corridors based on the predominant location of the proposed US 8 corridor within a particular segment. The Four-lane Alternatives are 400-foot (121.9 m) wide for the on-alignment and realignment corridors and 600-foot (182.9 m) wide for the bypass corridors. The rural corridor widths reflect the planning nature of this study and not the actual right-of-way needed. The urban, through-town corridors in the Village of Turtle Lake and City of Barron are 120-foot (36.6 m) and 100-foot (30.5 m) wide, respectively.

[1] Harwood, D.W., and A.D. St. John, *Passing Lanes and Other Operational Improvements*, 1985.

2.2.4.1 Segment I (200th Street to 120th Street)

Segment I starts at the beginning of the project near 200th Street in Polk County and ends at 120th Street (town line between Towns of Balsam Lake and Apple River), as shown on Figure 2.2.4.1-1. Segment I has three alternatives: one that closely follows the existing US 8 alignment, one shifted approximately 1,000 feet south of the existing corridor near Deer Lake, and one shifted approximately 2,500 feet south of the existing corridor near Deer Lake.

- **Deer Lake On-alignment (carried forward for detailed study)**

A. Description of Alternative

The Deer Lake On-alignment Alternative starts on existing alignment near 200th Street and continues to the east. An interchange would replace the US 8/WIS 35 (N) intersection as part of this alternative. It would be located to the east of the existing intersection. Another location for the interchange was considered west of WIS 35 (N) but was dismissed because of business relocation impacts. Just east of WIS 35 (N), the alignment shifts about 250 feet (76 m) south of existing US 8 and continues parallel and south of existing US 8 until about 1/2 mile (0.8 m) east of WIS 65, where the alignment joins back on the existing US 8 alignment. Between WIS 35 (N) and WIS 65 the existing US 8 roadway which would be utilized as a frontage road for access to properties near Deer Lake. Access to the new US 8 would be restricted. The total length of the Deer Lake On-alignment Alternative for Segment I is 7.9 miles (12.7 km).

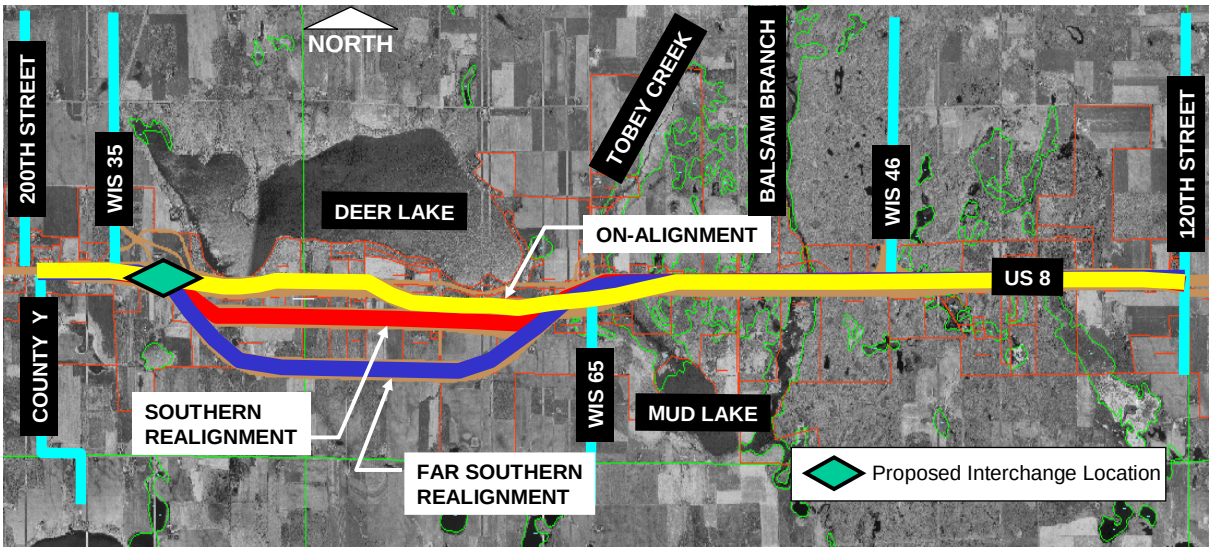

Figure 2.2.4.1-1 Segment I – 200th Street to 120th Street

B. Projected Effects of Alternative

The Deer Lake On-alignment Alternative would utilize the existing US 8 alignment from 200th Street to WIS 35 (N) and from east of WIS 65 to 120th Street. West of WIS 35 (N) the four-lane roadway would transition into the existing five-lane facility. Between WIS 65 and 120th Street, the existing roadway would be used as two eastbound lanes and the two westbound lanes would be constructed north of the existing roadway.

Between WIS 35 (N) and WIS 65, a new four-lane divided roadway would be constructed just south of existing US 8. Existing US 8 would be converted to a local frontage road to provide access to properties along Deer Lake. Access controls would be implemented as part of the alternative. New structures would be required over Tobey Creek and Balsam Branch. A culvert structure is required for Spring Creek. A grade-separated structure would be required for the interchange at WIS 35 (N).

The Deer Lake School, located about 700 feet (213.4 m) west of WIS 65 on the south side of US 8, is eligible for the National Register of Historic Places (NRHP). In this area, the On-alignment Alternative is shifted south to avoid impacts to the school. A potentially eligible archaeological site located on the north side of US 8 is also avoided with the alignment shift. Agricultural land would be impacted south of the existing roadway. The On-alignment Alternative results in relocation of a number of businesses located south of existing US 8 near Deer Lake as well as 26 residential properties along the corridor.

Table 2.2.4.1-1 summarizes land requirements and relocations for the Deer Lake On-alignment Alternative.

Table 2.2.4.1-1

Deer Lake On-alignment
Land Requirements and Relocations Summary

Type of Land	Required Acres	Required Hectares
Agricultural	91.7	37.1
Wetlands	46.4	18.9
Wooded	24.8	10
Other	102.9	41.6
Total New Right-of-Way	265.8	107.6
Relocations	13 Business, 26 residential	
Dairyland Power Cooperative	$0	

C. Purpose and Need Analysis

1. Corridors 2020 and Future LOS

Traffic volumes in this segment are projected to grow from about 7,600 ADT to between 12,000-14,800 ADT in the design year of 2030. According to the WisDOT FDM, a four-lane divided roadway should adequately handle between 8,700 and 44,000 ADT. Therefore, a four-lane roadway would give this section the capacity to handle projected traffic.

2. Long-Term Planning and Corridor Preservation

This alternative addresses long-term planning by defining the future location and type of access along US 8. This information can be used by local governmental units along the corridor in developing local transportation and comprehensive plans and determining the appropriate location of transportation supportive land uses. This alternative identifies a future corridor for US 8 that can be preserved through the use of expressway/freeway designation, official mapping, and access management.

3. Crash Rate Reduction

In Segment 1, the crash rate is below the statewide average but the fatal crash rate is twice the statewide average. Data indicates that crash rates would decrease with this alternative. First, studies have shown that converting a two-lane roadway to a four-lane divided facility could decrease crashes by 40 to 60 percent.[2] Also, crash rates for a four-lane divided roadway are lower than two-lane rural roadway rates. Between 1996 and 2000 the average crash rate in Wisconsin for a two-lane roadway is 180 crashes per hundred million vehicles miles (HMVM). For the same time period the crash rate for a four-lane divided highway is 76 per HMVM. Fatal crash rates between 1996 and 2000 decreased from 1.8 per HMVM on a two-lane roadway to 0.5 per HMVM on a four-lane divided roadway. Crash rates may also decrease because of typically there is limited access onto a four-lane divided highway.

[2] Safety Effects of the Conversion of Rural Two-Lane to Four-Lane Roadways Based on Cross sectional Models, Forrest M Council and J. Richard Stewart, 1998.

4. Correct Substandard Roadway Items

The Deer Lake On-alignment Alternative will correct existing substandard roadway items on this segment of the US 8 corridor. Currently, there are eight areas with substandard SSD requirements. With a newly constructed roadway, roadway design standards would be met. Substandard access controls are improved with this alternative because driveways along Deer Lake and many local streets would access the frontage road (former US 8).

5. Public Support

The Town of Balsam Lake passed a resolution in support of the Deer Lake On-alignment Alternative. The Town of St. Croix Falls had concerns about safety for vehicles entering US 8 and roadway connections west of WIS 35 (N). They also expressed concerns about additional traffic because of growth in the area but they did not directly comment for or against this alternative. Comments from the public information meeting (PIM) in October 2003 include some support for the On-alignment Alternative, but most of the written comments preferred one of the Realignment alternatives. The residents that preferred the On-alignment Alternative were concerned about the fragmentation of land and the loss of farmland associated with the other alternatives.

6. Summary or Purpose and Need

Table 2.2.4.1-2 summarizes how the Deer Lake On-alignment Alternative addresses the purpose and need criteria. This alternative was carried forward for detailed analysis because it meets the criteria for purpose and need.

Table 2.2.4.1-2

Deer Lake On-alignment
Summary Purpose and Need Analysis

Criteria	Deer Lake On-alignment Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs	Yes
Long-term planning and corridor preservation	Yes
Reduce crash rates	Yes
Correct substandard roadway items	Yes
Public support from:	
Town of St. Croix Falls	Formal support for or against not submitted
Town of Balsam Lake	Yes
Polk County Conservation Department	No
Area Residents and Businesses	Yes and No
US 8 Coalition	No

- **Deer Lake Southern Realignment (carried forward for detailed study)**

A. Description of Alternative

From 200th Street to WIS 35 (N) and from WIS 65 to 120th Street, the Deer Lake Southern Realignment follows the same alignment as the Deer Lake On-alignment alternative. Also, existing US 8 would be used as a frontage road between WIS 35 (N) and WIS 65 just as with the On-alignment Alternative. Between WIS 35 (N) and WIS 65 the Deer Lake Southern Realignment is located about 0.2 miles (0.3 km) south of existing US 8 (approximately 750 feet (229 m) further south than the On-alignment Alternative).

An interchange would replace the current US 8/WIS 35 (N) intersection and would be located southeast of the intersection. Another location for the interchange west of WIS 35 (N) was considered but dismissed because of business relocation impacts.

The total length of the Deer Lake Southern Realignment Alternative for Segment I is 8.0 miles (12.9 km), of which 3.5 miles (5.6 km) is on new alignment.

B. Projected Effects of Alternative

Similar to the On-alignment Alternative, this alternative would utilize the existing US 8 alignment from 200th Street to WIS 35 (N) and from east of WIS 65 to 120th Street. West of WIS 35 (N) the four-lane roadway would transition into the existing five-lane facility. Between WIS 65 and 120th Street, the existing roadway would be used as two eastbound lanes and the two westbound lanes would be constructed north of the existing roadway. Between WIS 35 (N) and WIS 65, existing US 8 would be used as a frontage road. Access controls would be implemented as part of the alternative. The Southern Realignment Alternative requires new structures over both Tobey Creek and Balsam Branch. A grade-separated structure would be required at WIS 35 (N).

The Southern Realignment Alternative avoids impacts to both the Deer Lake School and the potentially eligible archaeological site. Nine business relocations required by the On-alignment Alternative would not be relocated under the Southern Realignment Alternative. A substantial amount of land required for this alternative is agricultural land.

Table 2.2.4.1-3 summarizes land requirements and relocations for the Deer Lake Southern Realignment Alternative.

Table 2.2.4.1-3

Deer Lake Southern Realignment
Land Requirements and Relocations Summary

Type of Land	Required Acres	Required Hectares
Agricultural	134.1	54.3
Wetlands	39.6	16.0
Wooded	45.4	18.4
Other	191.2	77.4
Total New Right-of-Way	410.3	166.1
Relocations	4 Businesses, 21 Residential	
Dairyland Power Cooperative	$0	

C. Purpose and Need Analysis

The Deer Lake Southern Realignment Alternative meets the same Purpose and Need criteria (1. through 4.) as the Deer Lake On-alignment Alternative. There has been a higher level of public support for the Southern Realignment Alternative.

5. Public Support

This alternative was initiated as a result of public input to minimize water quality impacts to Deer Lake. Public support was mixed because of the physical route of the alternative. Comments from the Deer Lake PIM in October 2003 include some support for the On-alignment Alternative, but most of the written comments preferred the Southern Realignment or Far South Realignment. Those in favor of improving the Deer Lake water quality and reducing noise impacts supported the Southern Realignment. The Polk County Land & Water Resources Department supports the Deer Lake Southern Realignment. In December 2003, the US 8 Coalition voted in favor of the Southern Realignment.

6. Summary of Purpose and Need

Table 2.2.4.1-4 summarizes how the Deer Lake Southern Realignment Alternative addresses the purpose and need criteria. This alternative was carried forward for detailed analysis because it meets the criteria for purpose and need.

Table 2.2.4.1-4

Deer Lake Southern Realignment
Summary Purpose and Need Analysis

Criteria	Deer Lake Southern Realignment Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs	Yes
Long-term planning and corridor preservation	Yes
Reduce crash rates	Yes
Correct substandard roadway items	Yes
Public support from:	
Town of St. Croix Falls	Formal support for or against not submitted
Town of Balsam Lake	No
Polk County Conservation Department	Yes
Area Residents and Businesses	Yes and No
US 8 Coalition	Yes

- **Deer Lake Far Southern Realignment (carried forward for detailed study)**

A. Description of Alternative

The Value Engineering (VE) Study team and the Department of Agriculture, Trade, and Consumer Protection (DATCP) proposed that the Deer Lake Southern Realignment be moved further south to avoid bisecting several properties. The Deer Lake Far Southern Realignment Alternative was added for Segment I in late 2003. The addition of this alternative is discussed further in Section 2.3 Value Engineering.

The Deer Lake Far Southern Realignment is similar to the Deer Lake Southern Realignment Alternative except between WIS 35 (N) and WIS 65 where the corridor shifts about 0.5 miles (0.8 km) south of existing US 8 (approximately 1,500 feet further south than the Southern Realignment Alternative). From 200th Street to WIS 35 (N) and from WIS 65 to 120th Street, the Deer Lake Far Southern Realignment follows the same alignment as the Deer Lake On-alignment and Southern Realignment alternatives. As with the other alternatives, existing US 8 would be used as a frontage road between WIS 35 (N) and WIS 65.

Like the Deer Lake On-alignment and Southern Realignment Alternatives, an interchange would replace the current US 8/WIS 35 (N) intersection and would be located southeast of the intersection. Another location for the interchange west of WIS 35 (N) was considered but dismissed because of business relocation impacts.

The total length of the Deer Lake Far Southern Realignment Alternative for Segment I is 8.2 miles (13.2 km), of which 3.2 miles (5.1 km) is on new alignment.

B. Projected Effects of Alternative

Similar to the On-alignment Alternative, this alternative would utilize the existing US 8 alignment from 200th Street to WIS 35 (N) and from east of WIS 65 to 120th Street. West of WIS 35 (N) the four-lane roadway would transition into the existing five-lane facility. Between WIS 65 and 120th Street, the existing roadway would be used as two eastbound lanes and the two westbound lanes would be constructed north of the existing roadway. Between WIS 35 (N) and WIS 65, existing US 8 would be used as a frontage road. Access controls would be implemented as part of the alternative. The Far Southern Realignment Alternative requires new structures over both Tobey Creek and Balsam Branch. A grade-separated structure would be required at WIS 35 (N).

The Far Southern Realignment avoids impacts to both the Deer Lake School and the potentially eligible archaeological site. It has the least number of relocations of the three alternatives in Segment I.

Table 2.2.4.1-5 summarizes land requirements and relocations for the Deer Lake Far Southern Realignment Alternative.

Table 2.2.4.1-5

Deer Lake Far Southern Realignment
Land Requirements and Relocations Summary

Type of Land	Required Acres	Required Hectares
Agricultural	120.2	48.6
Wetlands	50.2	20.3
Wooded	63.1	25.5
Other	60.3	24.4
Total New Right-of-Way	293.8	118.9
Relocations	4 Businesses, 19 Residential	
Dairyland Power Cooperative	$0	

C. Purpose and Need Analysis

The Deer Lake Far Southern Realignment Alternative meets the same Purpose and Need criteria (1. through 4.) as the other two Deer Lake Alternatives. However, the Public Support for this Alternative differs because of the time frame of alternative development.

5. Public Support

The Deer Lake Far Southern Realignment Alternative was added to the list of initial alternatives to consider at the request of the VE Study team and the DATCP. This occurred after alternatives were presented to the public at the 2003 information meetings. As a result, the public has not had the PIM type of opportunity to comment on this alternative. A project newsletter published in August 2004 and sent to nearly 8,000 area addresses presented the new alternative. The WisDOT Web site also presented the new information.

6. Summary of Purpose and Need

Table 2.2.4.1-6 summarizes how the Deer Lake Far Southern Realignment Alternative addresses the purpose and need criteria. This alternative was carried forward for detailed study based on recommendations of the VE Study and because it meets four of the five criteria for the purpose and need.

Table 2.2.4.1-6

Deer Lake Far Southern Realignment
Summary Purpose and Need Analysis

Criteria	Deer Lake Southern Realignment Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs	Yes
Long-term planning and corridor preservation	Yes
Reduce crash rates	Yes
Correct substandard roadway items	Yes
Public support from:	
Town of St. Croix Falls	Undetermined
Town of Balsam Lake	Undetermined
Polk County Conservation Department	Undetermined
Area Residents and Businesses	Undetermined
US 8 Coalition	Undetermined

2.2.4.2 Segment II (120th Street to County E)

Segment II starts at 120th Street and ends at County E, as shown on Figure 2.2.4.2-1. There is one four-lane alternative for this segment and it follows the existing US 8 alignment. The WDNR suggested that a portion of the segment be routed south and off-alignment near County H to avoid Clover Lake. The suggested off-alignment route would then continue east along the town road Mains Crossing Avenue (Old US 8 and now a Rustic Road) and cross Apple River and WIS 46 before curving north back to the existing US 8 corridor. The off-alignment suggestion was not included because it lacked support from local officials who felt the agricultural and relocation impacts too severe.

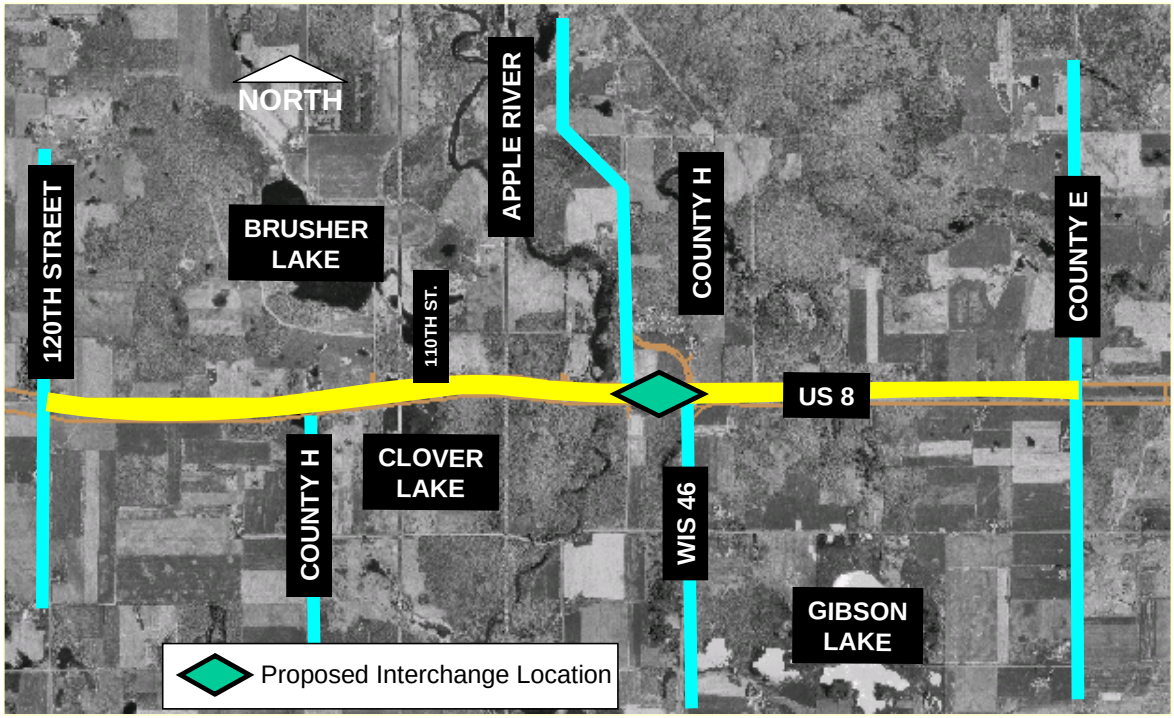

Figure 2.2.4.2-1 Segment II – 120th Street to County E

- **Apple River/Clover Lake On-alignment (carried forward for detailed study)**

A. Description of Alternative

This Alternative would expand the two-lane roadway to a four-lane rural expressway from 120th Street to County E along the existing alignment. The new roadway would utilize the existing highway throughout the entire length of this segment. Between 120th Street and County H (S), the existing roadway would be used for the westbound lanes. From County H (S) to County E, the existing roadway would be used for the eastbound lanes. This Alternative realigns County H (N) to connect with WIS 46 (S) with an interchange. The total length for Segment II is 4.0 miles (6.4 km).

B. Projected Effects of Alternative

Impacts to the Apple River (Shiloh) cemetery located on the north side of existing US 8 between 120th and 110th Streets are avoided by expanding south to four lanes by using the existing roadway as the westbound lanes. Near County H (S), the corridor begins to shift to the north to avoid impacts to the county-owned forested land south of existing US 8 between Clover Lake and the Apple River.

The Apple River/Clover Lake On-alignment Alternative avoids the Apple River Timber Demonstration Forest, located on the west side of Apple River. Relocation costs of Dairyland Power utilities are estimated at $30,000. This alternative does not impact any historical or archaeological sites.

The alternative crosses three small, unnamed water bodies and would require new structures over the pond just west of County H (S), Clover Lake and the Apple River. Access controls would be implemented as part of the alternative. A grade-separated crossing would be needed at the US 8/County H (N)/WIS 46 (S) interchange.

Table 2.2.4.2-1 summarizes land requirements for the Apple River/Clover Lake On-alignment Alternative.

Table 2.2.4.2.-1

Apple River/Clover Lake On-alignment
Land Requirements and Relocations Summary

Type of Land	Required Acres	Required Hectares
Agricultural	36.4	14.7
Wetlands	8.4	3.4
Wooded	15.8	6.4
Other	59.9	24.2
Total New Right-of-Way	120.5	48.7
Relocations	6 Businesses, 14 Residential	
Dairyland Power Cooperative	$30,000	

C. Purpose and Need Analysis

1. Corridors 2020 and Future LOS

Traffic volumes in this segment are projected to grow from about 8,800 ADT to 12,300 ADT in 2030. According to WisDOT guidelines in the FDM, a four-lane divided roadway should adequately handle between 8,700 and 44,000 ADT. Therefore, a four-lane roadway in this segment will provide adequate capacity to handle projected traffic.

2. Long-Term Planning and Corridor Preservation

This alternative addresses long-term planning by defining the future location and type of access along US 8. This information can be used by local governmental units along the corridor in developing local transportation and comprehensive plans and determining the appropriate location of transportation supportive land uses. This alternative identifies a future corridor for US 8 that can be preserved through the use of expressway/freeway designation, official mapping, and access management.

3. Crash Rate Reduction

Crash rates for this alternative will likely decrease with facility improvements and increased capacity. Studies indicate that converting a two-lane roadway to a four-lane divided facility could potentially decrease crashes by 40 to 60 percent.[3] Also, crash rates for a four-lane divided roadway indicate they are safer than a two-lane rural roadway. Between 1996 and 2000, the average crash rate in Wisconsin for a two-lane roadway was 180 crashes per HMVM. The crash rate for a four-lane divided highway for the same time period is 76 per HMVM. Fatality crash rates between 1996 and 2000 decreased from 1.8 per HMVM on a two-lane roadway to 0.5 per HMVM on a four-lane divided roadway. Crash rates may also decrease because of limited access points onto the expressway.

4. Correct Substandard Roadway Items

The Apple River/Clover Lake On-alignment Alternative will correct substandard roadway items that are located on this segment of US 8. Currently, three areas have deficient stopping sight distance between 120th Street and County E. With a newly constructed roadway, the Apple River/Clover Lake On-alignment Alternative would correct existing substandard roadway items.

5. Public Support

The town of Apple River supports the On-alignment Alternative. Also, in December 2003, the US 8 Coalition voted in favor of the Apple River On-alignment Alternative. Comments from the public were mixed.

6. Summary of Purpose and Need

Table 2.2.4.2-2 summarizes how the Apple River/Clover Lake On-alignment Alternative addresses the purpose and need criteria. This alternative was carried forward for detailed study because it meets the criteria for purpose and need.

Table 2.2.4.2-2

Apple River/Clover Lake On-alignment
Summary of Purpose and Need Analysis

Criteria	Apple River/Clover Lake On-alignment Alternative
Addresses the Corridors 2020 Plan by accommodating future LOS needs	Yes
Long-term planning and corridor preservation	Yes
Reduce crash rates	Yes
Correct substandard roadway items	Yes
Public support from:	
Town of Apple River	Yes
Area Residents and Businesses	Yes and No
US 8 Coalition	Yes

[3] Safety Effects of the Conversion of Rural Two-Lane to Four-Lane Roadways Based on Cross sectional Models, Forrest M Council and J. Richard Stewart, 1998.

2.2.4.3 Segment III (County E to 50th Street)

Segment III starts at County E and ends at 50th Street. The unincorporated community of Range is located within Segment III. Businesses and residents are located on both sides of existing US 8 as it passes through the small community. Segment III includes three alternatives as illustrated in Figure 2.2.4.3-1.

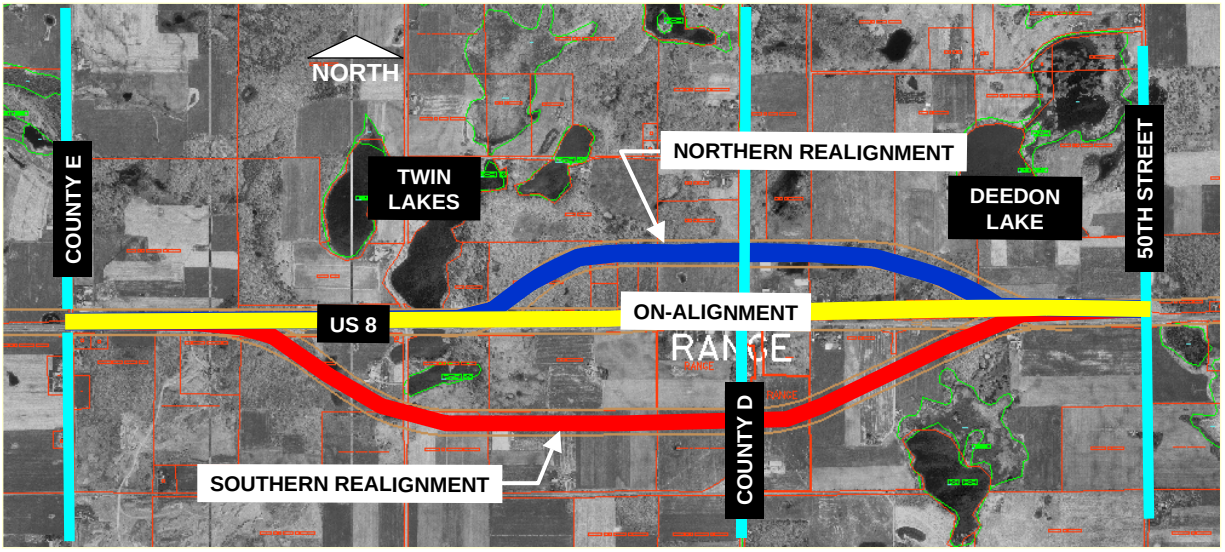

Figure 2.2.4.3-1 Segment III – County E to 50th Street

- **Range On-alignment** (carried forward for detailed study)

A. Description of Alternative

The Range On-alignment Alternative follows the existing alignment from County E to 50th Street. East and west of Range this alternative would utilize the existing roadway for the two eastbound lanes and the second roadway would be built north of existing US 8 for westbound vehicles. Through the community of Range, the entire four-lane divided roadway would be shifted slightly north of the existing roadway to provide required clearances to properties along the south side of the highway. The Range On-alignment Alternative maintains at-grade intersections at County E, 70th Street, County D, 56th Street, and 50th Street and has no grade-separated crossings. The total length for the Range On-alignment Alternative is 3.2 miles (5.1 km).

B. Projected Effects of Alternative

This alternative would utilize the existing roadway east and west of Range for the two eastbound lanes and two new lanes would be built north of the existing road for westbound vehicles. Through the community of Range, the corridor shift north preserves the existing structures on the south side of existing US 8 but impacts all the properties along the north side of the roadway. A new structure would be required for the second roadway crossing of Twin Lakes. Access controls would be implemented as part of the alternative.

The Range On-alignment Alternative does not impact any historical or archaeological sites. There would be substantial relocation impacts, particularly within Range. There would be 29.0 acres (11.7 ha) of agricultural land impacted for this 3 mile (4.8 km) segment. The Range On-alignment Alternative does not impact the Dairyland Power utility.

Table 2.2.4.3-1 outlines the land requirements and relocations for the Range On-alignment Alternative.

Table 2.2.4.3-1

Range On-alignment
Land Requirements and Relocations Summary

Type of Land	Required Acres	Required Hectares
Agricultural	29	11.7
Wetlands	6.7	2.7
Wooded	7.8	3.2
Other	40.1	16.2
Total New Right-of-Way	83.6	33.8
Relocations	3 Businesses, 21 Residential	
Dairyland Power Cooperative	$0	

C. Purpose and Need Analysis

1. Corridors 2020 and Future LOS

Traffic volumes within Segment III are projected to grow from about 6,370 ADT to about 9,900 ADT in design year 2030. According to WisDOT's FDM guidelines, a four-lane divided roadway should adequately handle between 8,700 and 44,000 ADT and would provide a minimum LOS C. Therefore, a four-lane expansion will give this segment the capacity to handle projected traffic. However, although Corridors 2020 Connector routes typically require LOS C, if a lower LOS is acceptable to WisDOT, the use of passing lanes could extend the use of some portions of the two-lane facility where projected design year traffic volumes are below 12,000 ADT. The presence of passing lanes in this area, constructed in 2002, could help to delay the need for a four-lane corridor until after 2030 depending on future traffic volume growth and LOS.

2. Long-Term Planning and Corridor Preservation

The Range On-alignment Alternative addresses long-term corridor preservation and planning by providing for increased capacity. This alternative also anticipates the future need for expanding US 8 to accommodate additional traffic. The Range On-alignment Alternative will help communities initiate their comprehensive plans.

3. Crash Rate Reduction

Crash rates for this alternative will likely decrease with corridor improvements and increased capacity. The crash rate in this segment is below the statewide average. However, with this alternative, crash rates may still decrease. Studies show that converting a two-lane roadway to a four-lane divided facility could potentially decrease crashes by 40 to 60 percent.[4] Also, crash rates for a four-lane divided roadway indicate they are safer than a two-lane rural roadway. Between 1996 and 2000, the average crash rate in Wisconsin for a two-lane roadway is 180 per HMVM. The crash rate for a four-lane divided highway for the same time period is 76 per HMVM. Fatality crash rates between 1996 and 2000 decreased from 1.8 per HMVM on a two-lane roadway to 0.5 per HMVM on a four-lane divided roadway. Crash rates may also decrease because of limited access points onto the expressway.

4. Correct Substandard Roadway Items

Currently, there are no identified geometric-roadway deficiencies on this portion of US 8. Therefore, the Range On-alignment Alternative will continue to meet all required standards established by WisDOT.

[4] Safety Effects of the Conversion of Rural Two-Lane to Four-Lane Roadways Based on Cross sectional Models, Forrest M Council and J. Richard Stewart, 1998.